ABSTRACT OF THE DISCLOSURE

A method of treating a food product includes packaging the food product in a modified atmosphere, removing oxygen from the modified atmosphere and irradiating the food product, such that the oxidation of the food product is impeded for a predetermined period of time after irradiating the food product. The removal of oxygen can be accomplished by packaging the food product in a substantially oxygen-free modified atmosphere using a multi-layered packaging material in which the outer layer is an oxygen-impermeable layer and the inner layer is an oxygen-permeable layer. After completion of the irradiation process, the outer oxygen-impermeable layer can be removed, allowing oxygen to enter the package. In an alternative embodiment, an oxidant-reactive chemical substance is applied to the food product prior to irradiating the food product to scavenge oxidants, such as free radicals, from the package atmosphere.